MINE EMERGENCY SIMULATION EXERCISES

These exercises are designed to teach judgment and decision making skills needed to cope with underground and surface mine emergencies. Generally, the exercises concern critical first aid and/or self-rescue and escape skills, Each exercise is based upon a realistic situation and is designed to place the miner in a simulation of that situation. The person working the exercise must decide what information to collect and what actions to take to correct or cope with the emergency.

These exercises were developed at the University of Kentucky under a Bureau of Mines contract. The exercises are based on research about how people solve problems and make decisions in emergency situations. Each exercise has been carefully developed with persons who are expert in the exercise content and field tested with working miners.

These types of exercises are listed as: latent image exercises, latent image exercises with 3-D slide reel, paper and pencil exercises, and role play simulations, Exercises appear alphabetically under the type of exercise.

Under each section the full name of the exercise is followed by a summary of the exercise content, a list of the skills promoted in the exercise, identity of the group for which it is designed, its length (if appropriate) and the catalog ordering number. (Time should be allotted for discussion after the trainees have completed working the exercise. Most exercises, with discussion time, can be completed in about one hour. Time needed will vary by class, exercise length, complexity and instructor.)

LATENT IMAGE EXERCISES

Latent Image Exercises require an instructor's manual, problem booklet, special answer sheet and special marking pen. The Instructor's Manual tells how to use the exercise, presents the objectives, the problem booklet, the master answer sheet, the scoring key, discussion notes to be used following the exercise, and summarizes the results from field tests of the exercise and reports miners' evaluation of the activity.

How to Order Latent Image Exercises

One problem booklet is needed for every person in the class, The booklets are reusable.

One answer sheet is needed for each person or each small group of persons who work the exercise. Copies of this answer sheet must have the latent image (invisible) ink answers. Answer sheets cannot be reused.

Latent Image Exercises are available as individual items to allow trainers to purchase exactly what they need for a class. The following prices apply:

Instructor's Manual: $2.00 each
Problem Booklet: $1.00 each
Answer Sheet: $1.00 each
Marking Pen: $2.00 each

Please order instructor's books, problem booklets and answer sheets by exercise title, catalog number and quantity desired. order marking pens by quantity desired,

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Apparent Diving Exercise

You are on a picnic with your family. Some teenagers ask you to help their friend who is hurt. You find a young man lying on the bank of a river. He appears partially paralyzed. His friends say he was injured diving into the shallow water. You must decide what to do.

Skills Reviewed: First aid
Primary/secondary survey
Diagnosing/treating possible spinal injuries

Audience: Basic first aid class
Length: Seven questions
Cat No: MES 1
Price: See ordering information

Arnel V. Beam

You are an advanced life support trained EMT. You are called underground to care for a miner injured by a coal outburst on a longwall face. You have a well equipped first aid kit and a helper. You meet miners bringing Arnel out. He is barely conscious and has difficulty breathing, You must diagnose and treat his pneumothorax or he may die.

Note: This exercise is similar to the Everett M. Arnold exercise designed for EMT's.

Skills Reviewed: Fi~st aid
Primary/secondary survey
Diagnosing/treating a pneumothorax injury

Audience: Paramedics
Length: Five questions
Cat No: MES 18
Price: See ordering information

Basics of Transformers and Monitors

Mining equipment often makes use of AC circuits with transformers, AC circuits with transformers are the basis for ground fault monitoring systems that are used on shuttle cars and other equipment. These safety systems are designed to prevent electrical shocks to workers. If ground monitor systems are bypassed, serious injuries and fatalities can result. You need to work through the exercise answering questions about the diagrams.

Skills Reviewed: Predicting the current flow
Generalizing the relationships demonstrated to the work environment
Recognizing the risks of tampering with ground monitor systems

Audience: Mine electricians and miners
Length: Six questions
Cat No: MES 65
Price: See ordering information

Belt Fire Exercise

You are the foreman for an 8 person crew that is advancing the headings of a longwall entry. You receive a call from the dispatcher reporting smoke coming out the belt entry from your section 5,000 feet outby your position, The air at the face is clear. You must decide how to evacuate the section, what equipment to take with you, gather information about the location and size of the fire, and determine if you should fight the fire or leave. The lives of the 8 miners you supervise, the lives of many other miners in the mine, and the well-being of the mine depend upon your judgments and actions,

Skirls Reviewed: Mine evacuation assembly points
Primary and secondary escapeway routes and procedures
Communication
Locating/fighting/escaping a mine fire

Audience: Underground coal
Length: Eleven questions
Cat No: MES 42
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Bennie J. Floyd

You and Bennie are building cribs in an entry that was cut too wide. It is near the end of the shift. As you are about to finish a crib, Bennie kneels, clutches his chest, and gasps. When you question him he says he has bad chest pain and trouble breathing. Bennie wants to rest a minute and then finish the job. You must decide what to do.

Skills Reviewed: First aid
Diagnosing possible heart attack
Comforting/caring for victim
Getting victim to medical help as soon as possible
Audience: Underground coal and metal/nonmetal
Length: Five questions
Cat No: MES 19
price: See ordering information

Bernie T. Reddish

A feeder in the reclaim tunnel under the product pile at a phosphate ore processing plant has failed and fallen on the belt conveyor, The belt is stopped, You and two workers are moving timbers to prop and jack the failed feeder so it can be repaired, Bernie, one of your coworkers, is tired. He places himself in a dangerous position. He is hurt. You must provide first aid and remove him from the tunnel. Note: This exercise is similar to the Cleo C. Pike exercise designed for underground coal miners and the Leroy B. Perkins exercise designed for coal preparation plant workers.

Skills Reviewed: First aid
Hazard recognition
Materials handling
Audience: Surface metal/nonmetal
Length: Eleven questions
Cat No: MES 30
Price: See ordering information

Bob Hall

Your friend, Bob Hall, leans against a roof bolter. The bolter lights go out and Bob convulses. The mine floor is wet. You want to help Bob, but you need to protect yourself too. Note: This exercise is similar to the Bob Woods exercise designed for surface coal miners.

Skills Reviewed: Electrical safety
First aid
CPR
-Audience: Underground coal
Length: Eight questions
Cat No: MES 2
Price: See ordering information

Bob Woods

Your friend, Bob Woods, leans against the electric track of the electric loading shovel. The shovel lights go out and Bob convulses. The ground floor is wet. You want to help Bob, but you need to protect yourself too. You must decide what to do and how to do it. Note: This exercise is very similar to the Bob Hall exercise designed for underground coal miners.

Skills Reviewed: First aid
Removing a victim from a live electrical circuit
CPR
Audience: Surface miners who are trained in CPR
Length: Seven questions
Cat No: MES 43
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Bull's Double Header: Too Much Unsupported Roof

You work at a mine that has approval to make 34 foot cuts using a remote controlled continuous miner. The roof bolting machine has broken down. The continuous miner has just been refitted with a new cutting head and bits that cut the coal much faster. The two roof bolter operators have been having a hard time keeping up with Bull, the continuous miner operator. At the face of #4 entry, Bull makes a 40 foot extended cut, trams back from the face, and then turns the miner and cuts the left-hand crosscut all the way through to the #3 entry. When the roof bolter operators discover Bull's "double header," they get the section foreman, and then try to plan a safe way to bolt this large area of unsupported roof. Shortly after they complete their assessment and plan of attack, a large roof fall occurs. Now the face crew must decide how to safely cleanup the fall while advancing roof support. Trainees are asked to (1) identify people's actions and other factors that contributed to the violation of the roof control plan, (2) select from among alternative strategies for reestablishing the roof control plan, and (3) figure out a safe way to clean up a large roof fall. At several points during the story trainees are asked to recognize problems and good and bad ways to correct them. Note: It is suggested that trainees work through the exercise in groups of 3 or 4 persons.

Skills Reviewed: Recognizing unsafe mining practices
Assessing changes in roof stability
Recognizing safe ways to clean up/resupport roof falls
Audience: Underground coal
Length: Twenty-nine questions (1.5 hours)
Cat No: MES 61
Price: See ordering information

Carl T. Donaldson

You and Carl are maintenance workers at a coal preparation plant, A belt is misaligned because fine wet coal is sticking to the tail pulley roller. You decide to shut the belt down so the roller can be cleaned. Carl says he knows a faster way to do the job. He begins a dangerous work practice. You try to stop him, but it is too late. He gets caught between the moving tail pulley and its guard. He is hurt. You must act fast to save Carl but avoid injury to yourself.

Skills Reviewed: Conveyor belt safety
Lockout and tag procedures
Rescue and first aid procedures for a person entangled in a moving belt
Audience: Persons who work around conveyor belts in preparation plants, mines, and similar places
Length: Thirteen questions
Cat No: MES 44
Price: See ordering information

Cecil

Big Tim and Cecil are working on a supersection. Cecil is in #1 entry (return air course) at the face replacing bits on a continuous miner when heavy smoke comes down on them from somewhere on the section. Cecil has a filter self-rescuer. Tim left his in #8 entry, Cecil has to find away to help Tim, plan a good route to travel through the smoke to warn others and get help, and help locate and fight the fire.

Skills Reviewed: Escapeways
Ventilation
Fire fighting
First aid
Audience: Underground coal
Length: Ten questions
Cat No: MES 3
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Chester O. Peterson

You are one of three scoop operators. During the first part of the shift an entry was shot and partly loaded. One of the other scoop operators, Speedy, has complained that he was dizzy and sick to his stomach. Otherwise, the shift has gone on as usual. You reenter the mine tier lunch and notice that some smoke is still hanging. You are worried that the ventilation may not be adequate, Soon the two scoop operators, Speedy and Chester, who are at the face go down. You must decide what to do to help them.

Skills Reviewed: Mine ventilation basics
Recognizing symptoms of CO poisoning
proper ventilation procedures
Safe rescue operations
Audience: Underground coal
Length: Nine questions
Cat No: MES 22
Price: See ordering information

Cleo C. Pike

You are pulling timbers off the chain conveyor of a longwall section and handing them to Cleo. Cleo is putting the timbers on top of the lowered shield to give the shield contact with the roof in a faulted area. Cleo's hand is crushed by a roof fall. You and one other miner are the only ones available to help him. As you help him he passes out. Now you must decide what to do. Note: A companion exercise Cleo C. Pike Role Play Simulation is also available. This exercise is also similar to the Bernie T. Reddish exercise designed for phosphate ore, sand and gravel, and crushed rock processing plant workers and the Leroy B. Perkins exercise designed for coal prep plant workers.

Skills Reviewed: First aid
Treating a crushed hand injury
Audience: Underground coal
Length: Six questions
Cat No: MES 20
Price: See ordering information

NEW Coal Miners' Chest X-ray Program

As some of the miners are eating lunch at the section dinner hole, Jeb, a younger miner, asks about the notice of the chest x-ray program he has seen on the company bulletin board. The miners begin talking about the program. Questions are raised about the purpose of the program, how it operates, what happens to the x-rays, and if it is important for miners to participate in the program. As these matters are discussed you are asked to give your advice and opinions about these matters. As the exercise is completed, the miners will learn more about this program.

Skills Reviewed: Understand the purpose of the NIOSH chest x-ray surveillance program
understand the legal rights and responsibilities of the miners, the companies, NIOSH, MSHA, and the medical personnel involved in the program
Audience: underground coal miners and surface workers at underground coal mines
Length: Eight questions
Cat No: MES 68
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Continuous Miner Fire

You are a mine section foreman. while completing pre-shift checks at the face for the oncoming second shift, you hear someone yelling "Fire!" You respond and find the continuous mining machine on fire in the last open crosscut. Near the fire a miner is down and injured. The fire is hot and getting out of hand. The mine roof over the burning machine begins to work and fall. Two miners are downwind from the smoke and missing. You must decide what to do to help the injured miner, fight the fire, and locate the two missing miners, while keeping your crew and yourself safe.

Skills Reviewed: Assessing an accident scene
Ordering first aid and fire fighting priorities
Conducting a primary/secondary survey
Diagnosing/treating burns and respiratory distress
Organizing/implementing fire fighting procedures
Deciding when to fight a fire and when to leave
Choosing escape routes

Audience: underground coal
Length: Twelve questions
Cat No: MES 45
Price: See ordering information

Cutthrough Ventilation Arrangement

Three shifts on two sections are driving entries 4,800 feet from the mains to forma retreating longwall panel. The mine is very gassy. One section is about to cut through to the other. A number of problems develop. You need 10 make sure the cutthrough proceeds safely and that the ventilation for both sections remains adequate. As the problem develops, other miners make errors. If you do not correct them, lives maybe lost.

Note: The Delta Mine Cutthrough Paper and Pencil exercise is a more difficult and somewhat different version of this problem.

Skills Reviewed: Ventilation basics
Ventilation map reading
Making air and gas measurements

Audience: Underground coal
Length: Twelve questions
Cat No: MES 4
Price: See ordering information

Douglas O. Sanders

You are a laborer. You and Doug Sanders are shoveling onto the belt. While working, Doug catches the tip of his shovel on the moving belt. Doug's arm is thrown up and back as he is spun around and the shovel is flung away. Doug swears and holds his right shoulder with his left hand. His shoulder looks deformed and he says it hurts, You must decide what to do. Note: This exercise is similar to the Douglas O. Tackett exercise designed for underground coal miners.

Skills Reviewed: First aid
Conducting a primary/secondary survey
Diagnosing/treating a possible shoulder dislocation or fracture
Applying a sling and a swathe
Proper work procedures for shoveling coal onto a moving belt

Audience: Underground/surface metal/nonmetal
Length: Seven questions
Cat No: MES 46
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Douglas O. Tackett

You are a general inside laborer. You and Douglas Tackett are shoveling loose coal onto the belt. While pitching a load, Douglas catches the tip of his shovel on the moving belt. Douglas's arm is thrown up and back as he is spun around and the shovel is flung down the entry. Douglas swears and holds his right shoulder with his left hand. His shoulder looks deformed and he says it hurts. You must decide what to do. Note: This exercise is similar to the Douglas 0. Sanders exercise designed for underground and surface metal/nonmetal miners.

Skills Reviewed: First aid
Proper work procedures
Audience: Underground coal
Length: Seven questions
Cat No: MES 5
price: See ordering information

Drainway

You are the roof bolter operator working with a crew that is cutting a 265 foot single entry drainway into old works that may be filled with water. You must decide if it is safe to work in the entry with the equipment and procedures available or if you need to take additional precautions. As you work and the cut progresses, you have to make decisions that affect your life and the lives of your buddies.

Skills Reviewed: Mine gases
Safe work procedures
Audience: Underground coal
Length: Fifteen questions
Cat No: MES 32
Price: See ordering information

Escape From a Mine Fire

You are the foreman on a 3 entry longwall development panel 2,500 feet from the mains and 15,000 feet from the portal. Suddenly a cloud of smoke comes up the belt entry. As you warn and assemble the crew the smoke becomes thick. A call from the surface orders the immediate evacuation of the section. The location of the fire is unknown. You lead the miners out the intake air entry only to encounter heavy smoke after a few crosscuts. You direct the miners to don their SCSRS and continue on. One miner cannot keep up and delays the escape of the others. Soon the smoke becomes so thick that visibility is only a few inches. The portal is still over two miles away. You must help your crew escape from the mine before their SCSRS are depleted, but you also do not want to leave the one miner behind.

Skills Reviewed: Mine fire escape strategies/procedures
Use of emergency breathing apparatus
Information gathering
Communication
Audience: Underground coal
Length: Fourteen questions
Cat No: MES 47
Price: See ordering information

Everett M. Arnold

You have been dispatched to the longwall section to care for a miner injured by a chain pillar bump. You take a helper and your first aid kit with you. Your supplies include a stethoscope, sphygmomanometer, cervical collar, inflatable splints, and various dressings and bandages. Upon arriving at the section you meet a stretcher team transporting Everett Arnold. You are informed that he was the only miner injured by the outburst. Note: This exercise is a simpler version of the Arnel V. Beam exercise designed for paramedics.

Skills Reviewed: Assess and care for injured miner
Audience: EMTs
Length: Six questions
Cat No: MES 6
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Fix-It

You are the roof bolter operator. You report damage to the bolter's trailing cable and are waiting for it to be repaired and spliced. Mr. Fix-It, the electrician, and his helper come to repair the cable. Their procedures worry you. The mine floor is wet, There is an accident. You are the only one around to help.

Skills Reviewed: Electrical safety procedures
First aid for electrical accident victims
Audience: Underground coal
Length: Six questions
Cat No: MES 7
Price: See ordering information

Good Ole Bill

You have recently been transferred to another mine and assigned to supervise the 8 mechanics in the maintenance shop. The mine superintendent is worried about tool pilferage and loss in your department. Soon after you are on the job you hear rumors that Bill, the best and most senior mechanic in the group, has been stealing tools. A crisis develops when equipment must be repaired, but the critical tool needed to do the job is missing. other mechanics say Bill knows where. the tool is. You must decide what to do to maintain safety and production, and to deal with the problem of the missing tool. A few weeks later, you observe Bill transporting a set of company tools off the mine property in his personal truck. You must decide what to do.

Skills Reviewed: Communication
Audience: First line supervisors, mine maintenance personnel, mechanics and miners
Length: Twelve questions
Cat No: MES 48
Price: See ordering information

Harry Harlan

You are the continuous miner operator. You hear your helper cry out. When you stop the machine, you find Harry lying on the floor near the miner tail boom. A shuttle car operator says he saw Harry get pinned to the mine roof by the tail boom. You and the other miners on the section must figure out how to care for Harry and take him out of the mine or he may die. Note: This exercise is similar to the Harry Hastings exercise designed for surface miners, The exercise Harry Harlan Role Play Simulation provides hands-on practice of the first aid skills required in this exercise.

Skills Reviewed: Treating crushed chest injury and shock
Primary/secondary survey
First aid
Audience: Underground coal
Length: Six questions
Cat No: MES 8
Price: See ordering information

Harry Hastings

You are at a surface mine in a pickup truck. You see Harry placing crib blocks between the frame and the bed of a large gob truck. The operator is in the truck cab. Suddenly the bed drops down, pinning Harry. If it were not for the blocks, Harry would have been cut in two. The operator quickly raises the bed. Harry falls to the ground near the rear wheels. The radios in both the gob truck and pickup are broken. It is 20 minutes by pickup truck to the nearest help. You and the gob truck operator must figure out what to do for Harry or he may die. Note: This exercise is similar to the Harry Harlan exercise designed for underground miners. The Harry Harlan Role Play Simulation exercise provides hands-on practice of the first aid skills taught in this exercise.

Skills Reviewed: First aid
Primary/secondary survey
Treating crushed chest injury/shock
Audience: Surface coal and metal/nonmetal
Length: Six questions
Cat No: MES 23
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Hot Gun Car

You are a hydraulic gun car operator at the #l pit. You return to your car to resume pumping after checking a leak. You walk through a water hole and place your left hand on the hand rail to steady yourself while stepping onto the deck. You receive an electrical shock. You must decide what to do to avoid injury to yourself and others. You are not a qualified electrician, although you have had some electrical training.

Skills Reviewed; Accident prevention
Recognizing electrical problems
Following safe procedures
Audience: Surface phosphate ore and other hydraulic pit miners
Length: Eleven questions
Cat No: MES 49
Price: See ordering information

Hot Shuttle Car

You are a shuttle car operator. After lunch you are about to get on your buggy. Your feet are wet. As you place your left hand on the canopy you get a shock. You are not a certified electrician but you have had some electrical training. You must decide what to do next.

Skills Reviewed: Accident prevention
Recognizing electrical problems/causes
Following safe procedures for correcting electrical problems
Audience: Underground coal
Length: Six questions
Cat No: MES 25
Price: See ordering information

J. J. Johnson

You and J. J. are alone. You are walking up an 825 foot slope with a 17 degree incline because the conveyor belt drive has broken down. Ten feet from the top, J. J. clutches his chest and sits down. He is in pain and has trouble breathing. You are the only one there to help him. You have to decide what to do. Note: This exercise is similar to the J. J. Smith exercise designed for surface miners and the J. J. Parsons exercise designed for phosphate ore, sand and gravel, and crushed stone processing plant workers.

Skills Reviewed: Symptom recognition
First aid for victims of possible heart attacks
Audience: Underground coal and metal/nonmetal
Length: Eight questions
Cat No: MES 9
Price: See ordering information

J.]. Parsons

'You and J. J. are climbing up the catwalk of an 815 foot long conveyor belt to the top of a product storage bin. You are inspecting the belt for damage. Ten feet from the top, J. J. clutches his chest and sits down. He is in pain and has trouble breathing. You are the only one there to help him. You have to decide what to do, and whether to go for help or to stay with him. Note: This exercise is similar to the J. J. Smith exercise designed for surface miners and the J. J. Johnson exercise designed for underground coal and rnetal/nonmetal miners.

Skills Reviewed: Symptom recognition
First aid for possible heart attack victims
Audience: Surface metal/nonmetal
Length: Eight questions
Cat No: MES 33
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

J. J. Smith

You and J. J. are climbing up the catwalk of an 825 foot long conveyor belt to the top of a clean - coal silo. You are inspecting the belt for damage. Ten feet from the top, J. J, clutches his chest and sits down. He is in pain and has trouble breathing. You are the only one there to help him. You have to decide what to do. **Note: This** exercise is similar to the **J. J. Johnson** exercise designed for underground coal and mend/nonmetal miners and the **J. J. Parsons** exercise designed for phosphate ore, sand and gravel, and crushed stone processing plant workers.

Skills Reviewed: Recognizing symptoms
First aid for possible heart attack victim
Audience: Surface coal
Length: Eight questions
Cat No: MES 26
Price: See ordering information

Leroy B. Perkins

A feeder in the tunnel under the stockpile at a coal preparation plant has failed and fallen on the belt conveyor. The belt is stopped. You and two workers are moving timbers to prop and jack the failed feeder so it can be repaired, Leroy, one of your coworkers, is tired. He places himself in a dangerous position, and becomes injured, You must provide first aid and remove him from the tunnel. **Note:** This exercise is similar to the **Bernie T. Reddish** exercise designed for phosphate ore processing plant workers and the **Cleo C.** Pike exercise designed for underground coal miners. The **Cleo C. Pike Role Play Simulation** exercise provides hands-on practice of the first aid skills required for this exercise.

Skills Reviewed: Recognizinig and avoiding hazards
Proper material handling
Avoiding pinch points
First aid
Treating a crushed hand injury
Treating shock
Transportation of injured
Audience: Coal preparation plant
Length: Eleven questions
Cat No: MES 50
Price: See ordering information

Low Coal Fire

You and your helper are working in an intake air entry at the face. The coal height is 28 inches. Heavy black smoke suddenly sweeps down on you from one of the intake air entries. You must decide what to do to warn others, to get to the assembly point, and to get out. The problem becomes more complicated when one of the miners is not accounted for.

Skills Reviewed: Escapeways
Use of self-rescuers
Decision making
Audience: Underground coal
Length: Nine questions
Cat No: MES 10
Price: See ordering information

Lynwood W. Puckett

You and Lynwood are maintenance mechanics repairing a piece of equipment in the float plant. It is night shift. You are on the fifth level, It is dark and wet-. No one else is around. You decide to use an electric impact wrench to break a coupling on an acid mixer, A nearby wall mounted 110v receptacle is dripping water. Because it is dark, Lynwood does not see the water dripping from the receptacle, You try to warn him, but he approaches the receptacle and plugs the wrench in. Then he convulses. You must decide what to do to help Lynwood and not get electrocuted yourself.

Skills Reviewed: Safe work practices
First Aid
Removing a victim from a live electrical circuit
CPR
Audience: Phosphate ore, sand and gravel, crushed rock, ore processing plant workers
Length: Ten questions
Cat No: MES 51
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Man in the Bin

You are the weigh master at the scales at the truck dumping bins at a preparation plant. Jake, a truck driver, raises the bed of his truck to dump a load in a bin. The load won't dump and the truck-bed won't come down. The bin appears to be full. Jake climbs into the bin on top of the coal. Suddenly the bridge of coal collapses. The 20 tons of coal in the bed of the truck slides out and buries Jake in the bin. You must decide what to do to help him without risking your life or the lives of others.

Skills Reviewed: Hazard recognition
Safe practices around bins, hoppers and stockpiles
Rescue procedures
First aid
Audience: Coal preparation plant and persons who work around bins of granulated materials
Length: Thirteen questions
Cat No: MES 52
price: See ordering information

Marvin Letcher Highwall

You are a front-end loader operator. Marvin, a coworker, approaches an unstable highwall, Suddenly a large rock falls completely covering his legs. Marvin is trapped lying facedown and screaming. Small pieces of rock continue to dribble down from the highwall. You and the other four miners present must figure out how to help Marvin while protecting yourselves. You must free Marvin, remove him from danger, and provide first aid for his serious injuries. **Note:** This exercise is similar to the **Marvin R. Letcher** latent image exercise designed for underground coal miners and its companion **Marvin R. Letcher** Role Play Simulation exercise.

Skills Reviewed: Rescuing a victim
Conducting primary/secondary survey
First Aid for shock, bleeding and fractures
Immobilizing a victim
Audience: Surface coal
Length: Ten questions
Cat No: MES 53
Price: See ordering information

Marvin R. Letcher

You are the pinner operator. Your helper, Marvin, goes under unsupported roof. As you yell to him to get back, there is a roof fall. It catches Marvin's legs. Marvin is lying face down and screaming. The roof is dribbling across the whole entry. You have to figure out how to rescue and help Marvin without getting yourself or other miners injured. Note: This exercise is similar to the **Marvin Letcher Highwall** exercise designed for surface miners. A companion, **Marvin R. Letcher Role Play** Simulation, is also available.

Skills Reviewed: Roof control
First aid
Freeing and transporting of injured
Audience: Underground coal
Length: Ten questions
Cat No: MES 11
Price: See ordering information

Paul Pancake

After 9 months of unemployment, Joe has recently completed the required training to reenter the mines and has just completed an advanced first aid course. He has been hired as an experienced roof bolter at a drift mine. This is his first day on the job. A scoop loaded with supplies pulls up and six other miners start climbing on top of it. Two miners get into the bucket next to the supplies. Joe is instructed to ride on top of the scoop. The mine roof is low and the roadway is rough. As the scoop approaches the dinner hole, someone screams "Stop!" Paul has fallen off. Paul is lying on his back in a puddle of water on the mine floor, just behind the scoop bucket. The scoop has run over him. There is blood on both of Paul's legs just below the knees. No one takes charge. Toe must decide what to do.

Skills Reviewed: Proper procedures for using a scoop as a mantrip
Recognizing unsafe work practices and procedures
First aid
Audience: Underground coal
Length: Sixteen questions
Cat No: MES 28
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Persephone Mine Explosion

You are the only EMT available. There has been a mine explosion. When you get to the portal, the uninjured miners are bringing out the eight victims. Ambulances and medical help are on the way. Now you have to decide which of the eight injured miners to care for and in what order. You have the other miners to help you and a couple of first aid kits.

Skills Reviewed: First aid triage
Audience: EMTs and paramedics
Length: Fourteen questions
Cat No: MES 34
Price: See ordering information

Pete's Predicament: Unsupported Roof

The preshift examination has been completed. The entire section has been rock dusted. John, the continuous miner operator, and Eddy, his helper, advance the miner to the face of the #3 entry and begin cutting coal. Pete, a visitor to this section, is standing near the right rib watching the mining machine to observe its new water spray system. A shuttle car comes up close to the right rib. After watching the miner cut coal for less than a minute Pete starts to get worried that he is in danger of being squeezed between the continuous miner and the rib. So he steps back around the corner into the right-hand crosscut which is rock dusted. Then he notices that about half the crosscut is unbolted and the top is dribbling small pieces of shale! Pete cannot escape into the #3 entry because the miner tailboom and shuttle car block this route. He sees that the far end of the crosscut is bolted. Pete must decide what to do to escape and to warn Eddy, John, and the shuttle car operator who are inby an unbolted crosscut. After Pete and Eddy escape, John must decide whether to abandon the mining machine and make a run for safety or to stay in the miner operator compartment under the canopy. At two points during the story, trainees are asked to decide whether it would be good or bad for Pete, and later on, John, to take various actions. Trainees are also asked to identify persons' actions and other factors that contributed to these miners unintentionally going inby an unbolted crosscut. The exercise concludes with a discussion of prevention techniques. Note: It is suggested that trainees work through the exercise in groups of 3 or 4 persons.

Skills Reviewed: Recognize proper and improper responses to an imminent roof fall
Identify factors that contribute to unintentionally going inby roof supports
Identify actions that help keep miners away from unsupported roof
Audience: Underground coal
Length: 33 questions (1 hour)
Cat No: MES 62
Price: See ordering information

Pipe Repair Problem

A worn section of a large overhead coal slurry pipe must be removed and replaced before the prep plant can start up. You are a laborer. You have been assigned to help two prep plant maintenance workers make the repairs. As you prepare to do t-he job and complete the work, many hazards and potential problems are present. You must recognize the hazards and act to prevent accidents. otherwise, you or others may be injured and property maybe damaged.

Skills Reviewed: Recognizing and preventing falling equipment/material hazards
Securing a heavy overhead object
Materials handling
Climbing to and working from structural beams/heavy pipes
Proper use of gas welding equipment
Dangering-off area where falling materials might strike passersby
Audience: Maintenance workers in preparation plants
Length: Eleven questions
Cat No: MES 54
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Pit Distribution Troubleshooting

The surface mine where you work receives its power from a 138 KV utility line that is stepped down to 25 KV for pit distribution. Substations make further reductions to 4,160 volts for operation of smaller equipment such as drills. The pit electrical distribution system has worked well. Then a problem develops. Power leaving a portable substation goes through two boxes to a drill. A ground fault occurred in the system and tripped box A. The flag was reset and the system held for about a week. Then the ground monitor trips box B. Within a few days box A trips two more times, As a mine electrician you must find and correct the electrical problem so that production and safety can be maintained.

Skills Reviewed: Electrical troubleshooting
Safe work practices
Audience: Surface mine electricians
Length: Five questions
Cat No: MES 55
Price: See ordering information

Problem on Dragline #1

You are the operator of Dragline #1. The dragline has been losing power. After making some checks, you report damage to the trailing cable about 100 feet from the machine. An electrician and his helper come to troubleshoot. They determine that the cable needs to be repaired. It was damaged by a bulldozer working in the area. The electrician is in a hurry. He engages in unsafe work practices. You try to stop him, but he ignores you. Soon there is an accident. You must figure out how to rescue the electrician without electrocuting yourself and then provide first aid to save his Me.

Skills Reviewed: Electrical safety procedures
First aid
Audience: Surface metal/nonmetal and coal
Length: Seven questions
Cat No: MES 56
Price: See ordering information

Roof Control at Intersections Exercise

Two underground miners are asked to advance the power center, mobile equipment and trailing cables in the working section. While surveying their assignment, they notice coal spalling along the left rib of the belt entry. They must investigate and determine if a problem exists with roof and rib conditions and the diagonal measurements of several intersections. They are to take any corrective actions that might be necessary.

Skills Reviewed: Hazard recognition
Accident prevention
Ground control
Audience: Underground coal
Length: Eleven questions
Cat No: MES 67
Price: See ordering information

Roof Fall Entrapment

A group of miners are extracting pillars in an unsafe manner. There is only one escapeway from the area where they are working. Earlier roof falls have blocked the other escapeways. The top is bad in the one entry being used for the haul road. The posts and crossbars that support it at the intersection of a crosscut begin to sag so much that the shuttle car you are driving can't come out from the face. The foreman yells at you to tell the miners to get out. But it is too late! As you are about to come out there is a large roof fall that completely blocks the one escapeway. You and the other miners are lucky. No one is hurt. But now you have to decide what to do.

Skills Reviewed: Roof and ground control
Pillar extraction procedures
Rescue procedures
Communications
Audience: Underground coal
Length: Nine questions
Cat No: MES 12
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Thurman "Hap" Anderson
Thurman "Hap" Anderson brings some supplies to a section. Cal meets him by a supply car on the section. Both Hap and Cal exhibit some unsafe work practices. An accident develops and Cal's leg is caught in the coupling. You must decide how Cal should be freed from the coupling, what first aid he needs, and how to care for him.

Skills Reviewed: Hazard recognition
Accident prevention
First aid
Audience: Underground coal
Length: Thirteen questions
Cat No: MES 13
Price: See ordering information

Tipple Heater Exercise
You are a qualified electrician with 5 years of experience. Below freezing weather has been causing problems on the tipple. The tipple boss wants an electrical heater installed immediately. Your supervisor, the chief electrician, is too busy to help. He tells you to take care of it. The company electrical engineer is on vacation. You must determine the power and wiring requirements for the heater, and you must work within the National Electrical Code standards.

Skills Reviewed: Power requirements for a resistor
Selection of conductors and fuse disconnects
National Electrical Code
Solving electrical wiring problems
Audience: Surface or underground metal/nonmetal
Length: Eleven questions
Cat No: MEs 57
Price: See ordering information

Tom A. Amette
You and two other miners find Tom, the shuttle car operator, kneeling with his back to the rib. His right arm has been severed about 6 inches below the shoulder joint. You must take care of and transport Tom to the surface where an EMT will take over. **Note: The Traumatic Arm Amputation Role Play Simulation** exercise is a parallel version of this latent image format exercise. The role play version provides hands-on practice of the first aid skills involved in this exercise.

Skills Reviewed: Conducting a primary survey
First aid for amputation
Shock
Transportation of injured
Audience: underground coal
Length: Eight questions
Cat No: MES 58
Price: See ordering information

Traumatic Head Injury
You are a scoop operator in 31 to 35 inch coal. Your cousin Bud operates another scoop. When Bud is backing his scoop out of #1 entry, you hear his hat strike a low overhanging brow, followed by his cursing. He is O.K. Later you go up to the scoop which is stopped in the area of the overhang. The scoop is not running. You find Bud slumped over in the cab. Now you have to decide what to do to help Bud.

Skills Reviewed: Hazard recognition
Accident prevention
First aid
Audience: Underground coal
Length: Eight questions
Cat No: MES 14
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Travel Through Smoke

You are the section foreman on a 4 entry longwall development panel that has been driven about 4,000 feet from the mains. You are in the track entry checking supplies with the utility man when you get the strong smell of smoke. You check and find that the smoke is not originating on your section. You call the dispatcher to find out the source of the smoke but he does not know and tells you he will try to find out. You assemble your crew, don your SCSRS, and then board the man trip and begin riding out of the section in the alternate (secondary) escapeway. You want to travel as far as possible on the man trip since this is the fastest and easiest way out of the mine. You travel in the man trip about 3,000 feet until the smoke becomes so thick that you can't see to continue. You stop the man trip and lead your crew into the primary escapeway where the smoke is not as heavy and continue your escape on foot. You travel about 1,100 feet in the primary escapeway until you reach clear air in the mains and discover that you are outby the fire.

Skills Reviewed: Mine fire escape strategies/procedures
Using emergency breathing apparatus
Information gathering
Communication
Audience: Underground coal
Length: Ten questions
Cat No: MES 63
Price: See ordering information

Trouble in the Training Room

You are teaching a hands-on first aid simulation exercise. You need a person to play the part of a victim and three others to play the part of the first aid team. Sally, one of the women miners, volunteers to be the victim. Immediately, Albert volunteers to administer first aid. He then begins to make lewd remarks about Sally and what he is going to do to her. He embellishes his remarks with obscene gestures. You must decide what to do to protect the dignity and rights of the persons in your class, to teach your class, and to cope with Albert's disruptive behavior. **Note:** A companion paper and pencil exercise **Trouble in the Training Room** is also available.

Skills Reviewed: Recognizing/avoiding sexual harassment
Communication
Maintaining control of the class
Audience: Mine health/safety instructors/trainers
Length: Twelve questions
Cat No: MES 35
Price: See ordering information

Vulcan Mine Ignition

You are the on-side shuttle car driver. Just after lunch you pull across the last open crosscut getting ready to go into #4 entry to load coal from the continuous miner. Just as you notice the line curtain is down, an orange fireball covers up the whole continuous miner in the entry, the miner operator, his helper, and the foreman who was also in the entry. After the fireball dies down, through the white smoke in the entry, you can see one miner down and the other two walking around by the continuous miner. You must decide what to do. Note: The companion latent image exercise Vulcan Mine Recovery continues the problem that is begun in this exercise. The two exercises maybe used in sequence or independently.

Skills Reviewed: Ventilation
Choosing escape routes
Rescue of injured miners
First aid
Transportation of injured
Audience: Underground coal
Length: Ten questions
Cat No: MES 15
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES

Vulcan Mine Recovery

You are the mine foreman. When you return from an errand, you learn there has been a large face ignition in the Vulcan Mine. The 001 section crew has come out of the mine with three injured miners. The three injured miners have been sent to a hospital by ambulance. You must decide what to do to prevent any further damage or injuries, to report the ignition, to learn about conditions in the mine, and to safely restore the section and the mine to operation. Note: The companion latent image exercise Vulcan Mine Ignition precedes the problem that is addressed in this exercise. The two exercises may be used in sequence or independently. This exercise has no correct answer feedback. Rather, it requires the trainee to work completely through the problem, receiving only the feedback that would be available in a real situation. Therefore, the instructor must display the answer key at the ' conclusion of the exercise, Trainees must then check the accuracy of their responses. Group discussion of the problem should follow.

Skills Reviewed: Information gathering
Decision making
Planning and developing recovery operation
Audience: Underground coal
Length: Twelve questions
Cat No: MES 16
Price: See ordering information

Water Line Repair

You and your supervisor, Big Tom Bell, are repairing a water line in the belt entry of a mine. You are 1,200 feet from the portal and 800 feet from the nearest phone which is inby your position at the tailpiece. You smell something that smells like burning coal. Tom sends you into the return air entry to get a tool from the scoop you drove in. When you come back into the belt entry, Tom is unconscious, You feel sick and weak. You have to decide what to do to help Tom and yourself.

Skills Reviewed: CO detection
Symptom recognition
First aid
Choice of escape routes
Audience: Underground coal
Length: Ten questions
Cat No: MES 17
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES - "3-D SLIDE REEL"

Latent Image Exercises with 3-D Slide Reel require an instructor's manual, 3-D slide reel, problem booklet, special answer sheet and marking pen. A reel of 3-D slides and a View-Master[1] viewer is necessary for each person or group of persons working the exercise. The View-Master[1] viewer is NOT available from the Academy. These may be purchased from your local toy store or purchased directly from View-Master Ideal Group, Inc., Special Markets, P. O. Box 444, Portland, Oregon 97207-0444, (503) 644-1181.

The Instructor's Manual tells how to use the exercise, presents the objectives, the problem booklet, the master answer sheet, the scoring key, discussion notes to be used following the exercise, and summarizes the results from field tests of the exercise and reports miners' evaluation of the activity.

How to Order Latent Image Exercises with 3-D Slide Reel

One reel of 3-D slides and a View-Master[1] is necessary for each person or group of persons working the exercise.

One problem booklet is needed for every person in the class. The booklets are reusable,

One answer sheet is needed for each person or each small group of persons who work the exercise. Copies of this answer sheet must have the latent image (invisible) ink answers. Answer sheets cannot be reused.

Latent Image Exercises with 3-D Slide Reel are available as individual items to allow trainers to purchase exactly whit they need for a class. The following prices apply:

Instructor's Manual: $2.00 each
3-D slide reel: $2.00 each
Problem Booklet: $1.00 each
Answer Sheet: $1.00 each
Marking Pen: $2.00 each

Please order instructor's books, 3-D slide reels, problem booklets and answer sheets by exercise title, catalog number and quantity desired. Order marking pens by quantity desired.

[1] *Reference to specfic products does not imply endorsement by MSHA.*

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES - "3-D SLIDE REEL"

D. R. Light

On a recent run of the escapeways, the section boss notices that the brow of a high fall area has begun to deteriorate. On this particular day, the face boss asks the miner operator and helper to follow the escapeway out from the face and take down any loose top at the high fall area. After correcting this problem the workers encounter another hazardous roof condition nearby. This involves deterioration of the immediate roof around the bolt heads as a result of moisture in the mine air.

Skills Reviewed: Hazard recognition
Accident prevention
Decision making
Audience: Underground coal
Length: Ten questions
Cat No: MES 38
Price: See ordering information

Hazard Recognition Training Program for Underground Limestone

This hazard recognition training program for underground limestone miners was developed by combining the degraded image concept with 3-D slides. It focuses on teaching miners certain techniques for recognizing visual cues in the workplace and using these cues to evaluate mining conditions and hazardous situations. There are two parts to the material. The first is the Instructor's Guide. The second part consists of four 3-D reels.

Skills Reviewed: Hazard recognition
Accident prevention
Audience: Underground limestone
Cat No: MES 39
Price: See ordering information

Main Haulage Scaling Exercise

You are running the lead locomotive pulling twenty empty coal cars into 3 East. Lynnbo is running the trail locomotive behind the trip. When you are done putting the empties on the section tipple, Lynnbo asks if you noticed the area of bad roof outby the fire car on the main line. You answer that you hadn't, and you ask Lynnbo how bad it looked. Lynnbo said he thought that the roof looked ugly to him, but since he works in the shop, it all looks ugly. This is your section and you know it has been recently rebolted. However, you decide to look at it. You tell Lynnbo that you will follow him to the area in question, You must decide the safest course of action in determining if there is a problem, then you must decide the safest course of action to take in having the bad roof fixed.

Skills Reviewed: Machine guarding
Safe work procedures
Audience: Underground coal
Length: Fourteen questions
Cat No: MES 66
Price: See ordering information

Raggs and Curly Guarding Exercise

A recent inspection, conducted by an insurance company, has identified some problems with machine guarding around the mobile conveyor system at a surface coal mine. The superintendent asks that you, a chief mechanic, conduct a more thorough inspection and document your findings. You are to report back to the superintendent with recommendations which will be part of a company wide machine guarding policy. The superintendent assigns "Curly," who just recently became a mechanic helper, to accompany you. You are to take this opportunity to teach him safe machine guarding practices. You travel through ;he complex and begin to document your findings.

Skills Reviewed: Hazard recognition
Accident prevention
Investigation techniques
Safe work procedures
Audience: Surface coal
Length: Eight questions
Cat No: MES 64
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

LATENT IMAGE EXERCISES - "3-D SLIDE REEL"

Sammy Spadd

During your routine survey work as a transit-man, you observed in recent weeks that an idle section in 2 North mains, about 3 miles from the portal, has been experiencing serious roof problems. You were told by one of the mine engineers that the problems are due to the sudden presence of slips in the roof running in the direction of mining. Several falls and significant downtime have forced the company to reconsider the development of 2 North, On this particular day the general superintendent informs you and Sammy that the company decided to reactivate the idled section beginning next shift. You are to enter the mine and set sights in 2 North to re-orient all the entries by 45 degrees to the east before the regular daylight crew arrives. You are beginning your work when you notice a section of top lower than the surrounding area. You must decide whether there is a problem that can wait or if it should be taken care of immediately.

Skills Reviewed: Hazard recognition
Roof and rib hazards
Methods for control of cutter roof
Audience: Underground coal
Length: Eight questions
Cat No: MES 37
Price: See ordering information

MINE EMERGENCY SIMULATION EXERCISES

PAPER AND PENCIL EXERCISES

Paper and Pencil Exercises require an instructor's manual, It tells how to use each exercise and presents the objectives. Paper and pencil are required for each participant to write short answers.

How to Order Paper and Pencil Exercises

One problem booklet and one answer sheet will be needed by each person in each class. Problem booklets are reusable. Both booklets and answer sheets may be duplicated from copies found in the instruct-or's manual.

Please order instructor's books by exercise title, catalog number and quantity desired.

Delta Mine Cutthrough

Planned cutthroughs from one mine section to another are underway over a period of several days and with three shifts as a retreating longwall panel is being set up. The mine liberates large quantities of methane. As the work progresses there are many points at which serious errors in communication, ventilation, and work procedures could develop, You must analyze the situation, identify and correct problems, and make sure the ventilation remains adequate throughout the procedures. Otherwise there may bean accident and miners may die. (The simulation is based on an actual mine disaster in which seven miners died,) The exercise provides practice in the critical planning, problem recognition, judgment and decision making skills needed to cope with the complexity of a cutthrough procedure and the major ventilation changes that may result. Note: The Cutthrough Ventilation Arrangement exercise is an easier and somewhat different version of this problem.

Skills Reviewed: Decision making
Accident prevention
Hazard recognition
Communication
Mine ventilation
Mine ventilation maps

Audience: Underground coal
Length: Twenty-five questions
Cat No: MES 31
Price: $1.00

Pot Luck Mine

You are an experienced roof bolter who has been out of work for a year. This is your second day at a new mine. When you go to the section the boss tells you to bolt up the face area in #2 heading. You find 3 unbolted cuts in the heading, and two other unbolted cuts on the section, You want to keep your job, but you also want to protect yourself and your coworkers. You must decide what to do.

Skills Reviewed: Identifying roof control hazards
Recognizing unsafe roof control practices
Evaluating potential costs of short CUtS

Audience: Underground coal
Length: Four questions
Cat No: MES 59
Price: $1.00

MINE EMERGENCY SIMULATION EXERCISES

PAPER AND PENCIL EXERCISES

Problem at Maxmore Mine

Injury rates at Maxmore Mine (an underground coal mine) have increased to three times the national average in the last quarter. As education, training, and safety specialists who develop and approve training plans, the trainees in your class are asked to examine a summary of the accidents for Maxmore Mine. The task is to suggest corrective actions to lower the injury rate. Next, three case studies are presented. Each case study describes attempts by one director of health and safety to reduce injuries at Maxmore Mine. The trainees are asked to judge the strengths and limitations of each approach, to decide if the program would be effective, and whether or not it should be approved. Following discussion of these initial case studies and class members responses, the exercise principles are applied to another case study situation involving injuries to contract workers at surface mines. Finally, a homework assignment asks the trainees to apply the exercise principles to a real-world problem of their own choice where improved training and performance evaluation may be one means to reduce accident and injury rates. Note: Completion of the exercise requires a minimum of 8 hours of classroom work plus homework.

Skills Reviewed:' Assessing accident data
Data gathering
Identifying causes
Recognizing limitations of training
Formulating training/evaluation plans

Audience: Mine health and safety trainers

Length: Eleven activities

Cat No: MES 60

Price: $1.00

Trouble in the Training Room

You are teaching a hands-on first aid simulation exercise. You need a person to play the part of a victim and three others to play the part of the first aid team, Sally, one of the women miners, volunteers to be the victim. Immediately, Albert volunteers to administer first aid, He then begins to make lewd remarks about Sally and what he is going to do to her. He embellishes his remarks with obscene gestures. You must decide what to do to protect the dignity and rights of the persons in your class, to teach your class, and to cope with Albert's disruptive behavior. Note: A companion latent image exercise Trouble in the Training Room is also available.

Skills Reviewed: Recognizing/avoiding sexual harassment
Maintaining control of class
Communication

Audience: Mine health/safety instructors/trainers

Length: Twelve questions

Cat No: MES 36

Price: $1.00

MINE EMERGENCY SIMULATION EXERCISES

ROLE PLAY SIMULATIONS

Each Role Play Simulations Exercise requires an instructor's manual. It tells how to use the exercise and presents the objectives.

How to order Role Play Simulations

One answer sheet is needed for each person in each class. These maybe duplicated from the copy found in the instructor's manual. No problem booklet is required.

Please order instructor's books by exercise title, catalog number and quantity desired,

Cleo C. Pike Role Play Simulation

You are a jack setter and an EMT, Your partner Cleo yells for help. You find that his hand was crushed by a rock fall when he reached between a lowered chock and the roof, You administer first aid using the mine first aid kit that is available. Your first aid performance will be rated against a checklist by the instructor and your classmates. Note: This exercise is a parallel version of the latent image Cleo C. Pike exercise. The role play version provides hands-on practice of the first. aid skills involved in the Cleo C. Pike, Bernie T. Reddish and Leroy B. Perkins latent image exercises.

Skills Reviewed: First aid
Treating a crushed hand injury
Audience: Underground coal
Cat No: MES 21
Price: $1.00

Harry Harlan Role Play Simulation

You are the continuous miner operator. You hear your helper cry out. When you stop the machine, you find Harry lying on the floor near the miner tail boom. A shuttle car operator says he saw Harry get pinned to the mine roof by the tail boom. You and the other miners on the section must do a primary survey and then begin to treat Harry's injuries, stabilize him, and prepare him for the trip to the surface. You have a mine first aid kit. There is no EMT available. Your first aid performance will be rated against a checklist by the instructor and your classmates, Note: This exercise provides hands-on practice for the first aid skills required for the Harry Harlan and Harry Hastings latent image exercises.

Skills-Reviewed: First aid
Primary/secondary survey
Treating crushed chest injury/shock
Immobilizing a victim prior to transportation
Audience: Underground coal
Cat No: MES 24
Price: $1.00

MINE EMERGENCY SIMULATION EXERCISES

ROLE PLAY SIMULATIONS

Marvin R. Letcher Role Play Simulation

You are the pinner operator, Your helper, Marvin, goes under unsupported roof. As you yell to him to get back, there is a roof fall. It catches Marvin's legs. Marvin is lying face down and screaming. The roof is dribbling across the whole entry. You have to figure out how to rescue and help Marvin without getting yourself or other miners injured. You have slate bars, roof jacks, a mine first aid kit, a mine phone, and two other miners who can help, Your rescue and first aid performance will be rated against a checklist by the instructor and your classmates. **Note:** This exercise is a parallel version of the **Marvin R. Letcher** latent image exercise. This role play version provides hands-on practice of the first aid skills involved in the **Marvin R. Letcher** and **Marvin Letcher Highwall** exercises.

Skills Reviewed: Rescue and first aid
Supporting a mine roof to make a rescue safe for the rescuers
Rescuing a victim from a dangerous place
Primary/secondary survey
First aid treatment for shock and crushed legs (bleeding and fractures)

Audience: Underground coal
Cat No: MES 27
Price: $1.00

Traumatic Arm Amputation Role Play Simulation

While unloading at the feeder-breaker, a shuttle car driver reaches over the sideboard into the shuttle car to pull out. a piece of strap iron. As he reaches into the shuttle car, his leg strikes the control that raises the shuttle car boom. The sideboard raises up quickly, moves past the canopy, and cuts off the shuttle car operator's right arm at the shoulder, The driver staggers out of the operator's compartment, holding his left hand over the stump of his light arm. He slumps down against the rib, bleeding heavily. His severed arm is still in the box of the shuttle car. Someone stops the feeder. You witness the entire accident which takes place in just a few seconds. You must act fast or the shuttle car operator will die. Note: This is a companion exercise to the latent image exercise **Tom A. Arnette.**

Skills Reviewed: Controlling massive arterial and venous bleeding
Using wound packing, direct pressure and pressure points
Caring for a victim with an amputated arm
Treating shock
Retrieving and caring for an avulsed arm
Following safe work practices
Recognizing the role of safety shields and guards

Audience: Underground coal
Cat No: MES 29
Price: $1.00